

- Logic
- Deduction and induction
- Classes of inductive questions (from philosophical induction to probability)
- Extreme resolutions: “Bayesian,” “falsificationist,” “conventionalist”

As far as we know, among the great ancient civilizations, only the Greeks studied the formal validity of argumentation, a.k.a., logic (Shenefelt and White 2013). This presentation will borrow a lot from the lucid and readable reference Hacking 2001.

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Logic studies the *validity* of an argument, not the *truth* of its conclusions.

An argument is valid if it is logically sound.

A proposition is a statement which is either true or false.

Example:

If James wants a job, then he will get a haircut tomorrow.

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So: James wants a job.

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Questions:

Which argument is valid?

What are the propositions?

Which propositions are true?

References



Hacking, I. (2001). *An introduction to probability and inductive logic*. Cambridge university press.



Shenefelt, M. and H. White (2013). *If A, then B: How the world discovered logic*. Columbia University Press.

Which of these arguments are valid? (Hacking 2001, Ch.1 Question 7)

- I follow three major league teams. Most of their top hitters chew tobacco at the plate.
⇒ Chewing tobacco improves batting average.
- The top six hitters in the National League chew tobacco at the plate.
⇒ Chewing tobacco improves batting average.
- A study by the American Dental Association of 158 players on seven major league teams during the 1988 season showed that the mean batting average for chewers was 0.238 compared to 0.248 for non-users. Abstainers also had a higher fielding average.
⇒ Chewing tobacco does not improve batting average.
- In 1921, every major league pitcher who chewed tobacco when up to bat had a higher batting average than any major league pitcher who did not.
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